

MANAGEMENT OF ELECTRONIC PROGRAM GUIDESFIELD OF INVENTION

5 The present invention generally relates to the manage-
ment of programs for home entertainment devices, such
as televisions and Set Top Boxes. More particularly it
relates to a method, a multimedia terminal, a mobile
terminal, and a computer program for transferring
Electronic Program Guides between different terminals
10 and the editing of Electronic Program Guide data.

BACKGROUND

15 An Electronic Program Guide (EPG) is an application
provided in a multimedia terminal or a home entertain-
ment device, such as a Set Top Box (STB) designed to
aid a viewer in the navigation of and selection from
broadcast programs in a digital system. By means of
the EPG, it is possible to make settings in the home
entertainment device. It is also possible to register
reminders and planned recordings as well as to filter
20 the large amount of information available through the
EPG. It is even possible to create a "virtual" channel
comprising programs from different channels, as is de-
scribed in the international publication WO 00/40028.

25 However, a problem associated with the use of EPGs is
that the management thereof can be time-consuming con-
sidering the amount of information involved; an EPG
covering one week normally contains several thousands
of TV programs.

30 Another problem associated with the use of STBs and
EPGs is that STBs are stationary whilst persons using

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5 A further problem is that the opportunities to share
the work put into an edited EPG are limited.

10 SUMMARY OF THE INVENTION

15 The invention is based on the realization, that EPG information can be transferred to and from an STB by means of a mobile terminal, such as a Personal Digital Assistant (PDA), a mobile phone, or an advanced remote control.

20 Thus, according to a first aspect of the invention
there is provided a method of managing Electronic
Program Guide data in a digital entertainment system
comprising a multimedia terminal, said method compris-
ing the following steps: retrieving Electronic Program
25 Guide data; transferring said Electronic Program Guide
data to a mobile terminal; editing said Electronic
Program Guide data by means of said mobile terminal;
and transferring said Electronic Program Guide data to
said multimedia terminal.

According to a second aspect there is provided multi-media terminal comprising control electronics; a tuner connected to said control electronics; an electronic storage connected to said control electronics; an encoder connected to a display connector and to said control electronics; a communication device connected to said control electronics for communication with a mobile terminal; wherein said terminal is arranged to receive an Electronic Program Guide transmitted by said mobile terminal.

According to a third aspect there is provided a mobile terminal comprising: control electronics for controlling the operation of said mobile terminal; an input device connected to said control electronics; a display connected to said control electronics; an electronic storage for storing software and data connected to said control electronics; a communication device connected to said control electronics and being arranged to communicate with a multimedia terminal; wherein said electronic storage comprises software code portions for performing the following steps: receiving an Electronic Program Guide from a multimedia terminal by means of said communication device; editing said received Electronic Program Guide; and transmitting said edited Electronic Program Guide to a multimedia terminal.

According to a fourth aspect there is provided computer program product directly loadable into the internal memory of a mobile terminal, said computer program product comprising software code portions for performing the following steps: receiving Electronic

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5 With the method, the multimedia terminal, the mobile terminal, and the computer program product according to the invention, the above mentioned problems in a home entertainment environment are solved or at least mitigated. More specifically, the invention provides
10 means for managing EPG Data in an efficient way. By means of the inventive concept, it is also possible to share EPGs between different STBs in a convenient way.

The invention is now described, by way of example,
15 with reference to the accompanying drawings, in which:

Fig. 2 is a diagram showing the general information flow in a system according to the invention;

Fig. 5 is a detailed diagram showing a Set Top Box and a Mobile Terminal.

25 In the following, a detailed description of embodiments of the invention will be given. In the description, for purposes of explanation and not limitation,

specific details are set forth, such as particular hardware, applications, techniques etc. in order to provide a thorough understanding of the present invention. However, it will be apparent to one skilled in the art that the present invention may be utilized in other embodiments that depart from these specific details. In other instances, detailed descriptions of well-known methods, apparatuses, and circuits are omitted so as not to obscure the description of the present invention with unnecessary details.

In fig. 1, a flow chart describing the general inventive idea is shown. In a first step 110, data of an Electronic Program Guide (EPG) is retrieved by means of a Set Top Box (STB) or a Personal Computer (PC) connected to an information network, such as a cable, terrestrial, or satellite network, the Internet etc. This retrieval can be effected automatically, such as every night, or at the request of a user. The EPG data comprises information regarding TV programs during the next seven days, for example, such as TV channel, name, a unique identification, start and stop times, a classification (adult, children, sports etc.), and sometimes a short abstract.

Considering the large amount of data, this can optionally be filtered in a second step 120. This filtering can delete data regarding TV programs falling outside of the field of interest of the EPG user and is a known feature.

In a third step 130 the EPG Data is transferred from the stationary terminal to a Mobile Terminal (MT),

such as a mobile phone or a PDA. This transfer can be performed in several ways, as will be described below. The MT is provided with software for managing an EPG. This software is used in a fourth step 140 for editing the EPG data downloaded to the MT. This editing can include setting reminders and recordings as well as further filtering of the data. Because this editing is performed in a mobile terminal, it can be done in a more convenient way and when the user has no access to a device conventionally used for editing EPG Data, such as an STB connected to a display unit, such as a TV set.

When the EPG data has been edited, it is subsequently transferred in a fifth step 150 to an STB used for displaying the TV programs on a TV set, for example. Sometimes, the transferred data contains information in conflict with information already stored in the STB to which the data is transferred. For example, data requesting recording of a program on a specific TV channel at a specific time is in conflict with a request for recording another program on another TV channel at the specific time. In that case, in a sixth step 160, the user is given the choice of either replacing the previously recorded request with the request in the now downloaded data or keeping the old request. In the latter case, the request for recording can be transformed into a reminder instead.

A first example of an implementation of the inventive method will now be given with reference to fig. 2 and also to fig. 5, wherein an STB 10 and an MT 20 are shown in detail. The STB 10 is provided in a home

entertainment environment comprising a TV set 16 (shown in fig. 5) for displaying TV programs. The STB is also connected to a source of EPG Data 70 through some kind of communication network 80, such as a
5 cable, terrestrial, or satellite network, the Internet etc. It is thus possible to retrieve an EPG by means of the STB 10.

With reference to fig. 5, the STB 10 comprises control electronics 11 controlling the function of the device.
10 Various other parts are connected to the electronics 11, such as a tuner 12 arranged to receive digital audio and video information, a modem 13 connectable to a data network, such as the Internet, an electronic storage 14 for software and data, such as an EPG, an
15 encoder for displaying information on an attached TV set 16, and a communication device 17, such as an IR communication device or an RF transceiver device.

The mobile terminal 20 also comprises control electronics 21, as is conventional. It further comprises a
20 display 22, such as an LCD, for displaying information, and an input device in the form of a keypad 23 for entering information. A communication device 24 is arranged to communicate with the communication device 17 of the STB 10. Finally, an electronic storage 25 is
25 provided for storing software and data.

When the EPG has been retrieved in the STB 10, the user can edit the information as is conventional. This editing comprises filtering and setting reminders and requesting recordings. However, at this stage editing
30 is optional in the STB.

The EPG data is then transferred to the Mobile Terminal (MT) 20. In the figure this transfer is shown as being wireless. Thus, any conventional wireless transfer method can be used, such as by means of infrared (IR) communication, radio communication, such as in accordance with the Bluetooth(r) standard, etc. Wireless communication is easy to use and provides for a simple system without too much equipment and devices.

When the EPG data has been transferred to the MT, the user can edit the data stored in the MT. This editing can take place anywhere and anytime and is not limited to a location in connection with a multimedia system. For example, if the transfer takes place in the morning, the user can edit the data on his or her way to and from work, sitting on a bus or in a train, for example. This indeed adds another dimension of flexibility to the use of a home entertainment system.

After having edited the EPG Data in the MT 20, the user retransmits the now edited data to the STB 10. Continuing the example above, this can be done after having returned from work, for example. Thus, instead of having to use the EPG when about to watch TV, the user can just sit down and transfer the EPG to the STB 10 without the risk of missing a TV program.

It will be appreciated that the transfer of information to the STB 10 can involve some kind of authentication procedure. For example, the user must supply a PIN code before the STB 10 accepts any recordings or request.

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The MT 20 can contain some kind of personalized filter. By means of this filter, the EPG data transferred to the MT is automatically adapted to the preferences of the user. This use of the inventive method provides
5 for an easy way to adapt a home entertainment environment to a particular user and is a more flexible alternative to having different user profiles stored in the STB.

A second example of the use of the inventive method
10 will now be given with reference to fig. 3, wherein a Personal Computer (PC) 40 connected to an EPG source 70 via a data or other kind of communication network 80, an MT 20 and an STB 10 are shown. In this example, information transmission between the PC 40 and the MT
15 20 is effected by means of wire, such as by means of a MT docking station connected to the PC.

It is envisaged that the PC 40 can be provided at another location than the STB 10, such as at the user's office, wherein the PC is connected to the
20 Internet 80. A user can then, during lunchtime, for example, download an EPG to the PC 40 from a site on the Internet using TCP/IP and ftp. The user then retransmits the EPG to the MT 20 connected to the PC 40. At his or her way back home after work, the user
25 can edit the EPG Data. After having returned home, the user transmits the data to the STB 10, just as in the first example given above.

A third example of the use of the inventive method will now be given with reference to fig. 4, wherein a
30 first STB 10 connected to an EPG source 70 via a data

network 80, and a second 60 STB are shown together with a first 20 and a second 50 MT. In this example, the information transfer between the different devices is wireless.

- 5 The transfer of EPG data from STB 10 to MT 20 is carried out as in the first example above given with reference to fig. 2. The editing of data in the MT 20 has also been described above. However, instead of retransmitting the edited data to the STB 10 from
- 10 which the EPG was retrieved, the data is sent to the second MT 50. As an example, the two MTs 20 and 50 are two mobile phones owned by two friends or working mates. When the owner of the first MT 20 has edited the data, he or she gives the data to the owner of the
- 15 second MT 50. The information transfer can be carried out by means of an IR connection commonly found on mobile phones of today, for example. Another way is to use Short Message Service (SMS) or corresponding communication systems to transfer the information to a
- 20 remote second MT 50.

- The owner of the second MT 50 subsequently transfers the edited data to his or her STB 60, which can be situated far from the first MT 10. Thus, the inventive method provides for a way to exchange information
- 25 between different home entertainment systems.

- Preferred embodiments of the invention have been described. It is realized that these can be varied within the scope of the appended claims. For example, encryption of data can be used to increase the level
- 30 of security, if so desired.

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